

Needed process to ensure Safety is a priority in car design

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Crucial times for Traffic Safety

- There is a wide consensus about the need for further improvements
- There is a wide consensus about the main factors causing fatalities
- Current solutions have reached their limits
- New technologies are available to address real world issues
- The automotive industry is facing other tough challenges (carbon emission)

So, how to make it happen ?

Need for further improvement

1998

1. Respiratory Infections
2. HIV/AIDS
3. Perinatal Conditions
4. Unipolar Major Depression
5. Diarrhoeal Diseases
6. Ischaemic Heart Disease
7. Cerebrovascular Disease
8. Malaria
- 9. Road Traffic Accidents = 1,170,694**
10. Obstructive Pulmonary Disease

2020

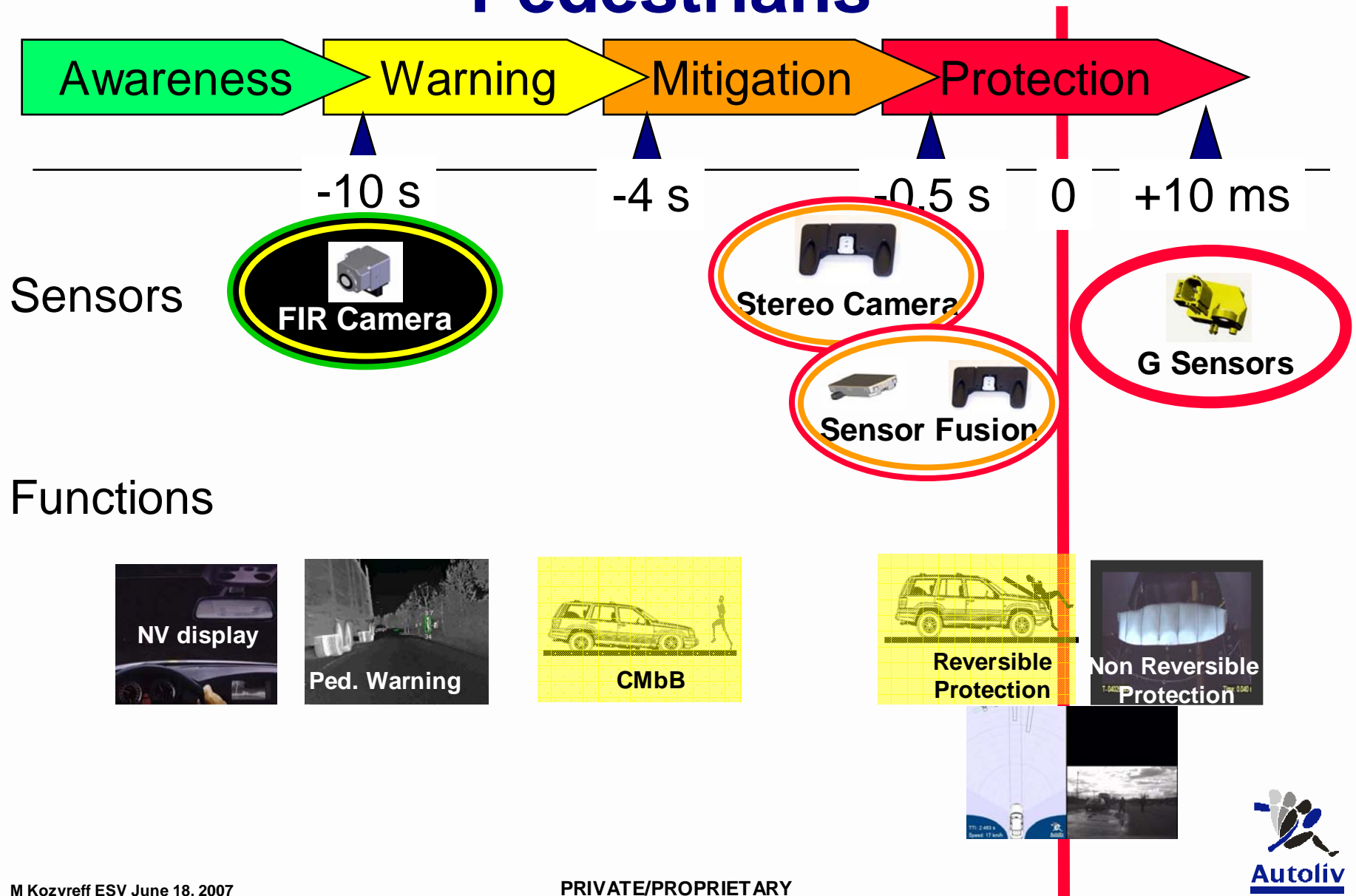
1. Ischaemic Heart Disease
2. Unipolar Major Depression
- 3. Road Traffic Accidents = 2,300,000**
4. Cerebrovascular Disease
5. Obstructive Pulmonary Disease
6. Respiratory Infections
7. Tuberculosis
8. War
9. Diarrhoeal Diseases
10. HIV/AIDS

According to Prof. Mckay, based on WHO data

Main factors causing fatalities

- Drivers under the influence of alcohol:
>50% of accidents with life-threatening and fatal injuries.
- Road intersections and road junctions:
50% of all accidents with personal injuries.
- Vulnerable road users
30% of all killed in traffic accidents.
- Drivers with reduced performance
25% of all accidents.
- High velocity differentials:
over represented in all accidents.
- Unadapted speed:
25 % of all fatal accidents.

Example of available technologies: Pedestrians



How to make it happen ?

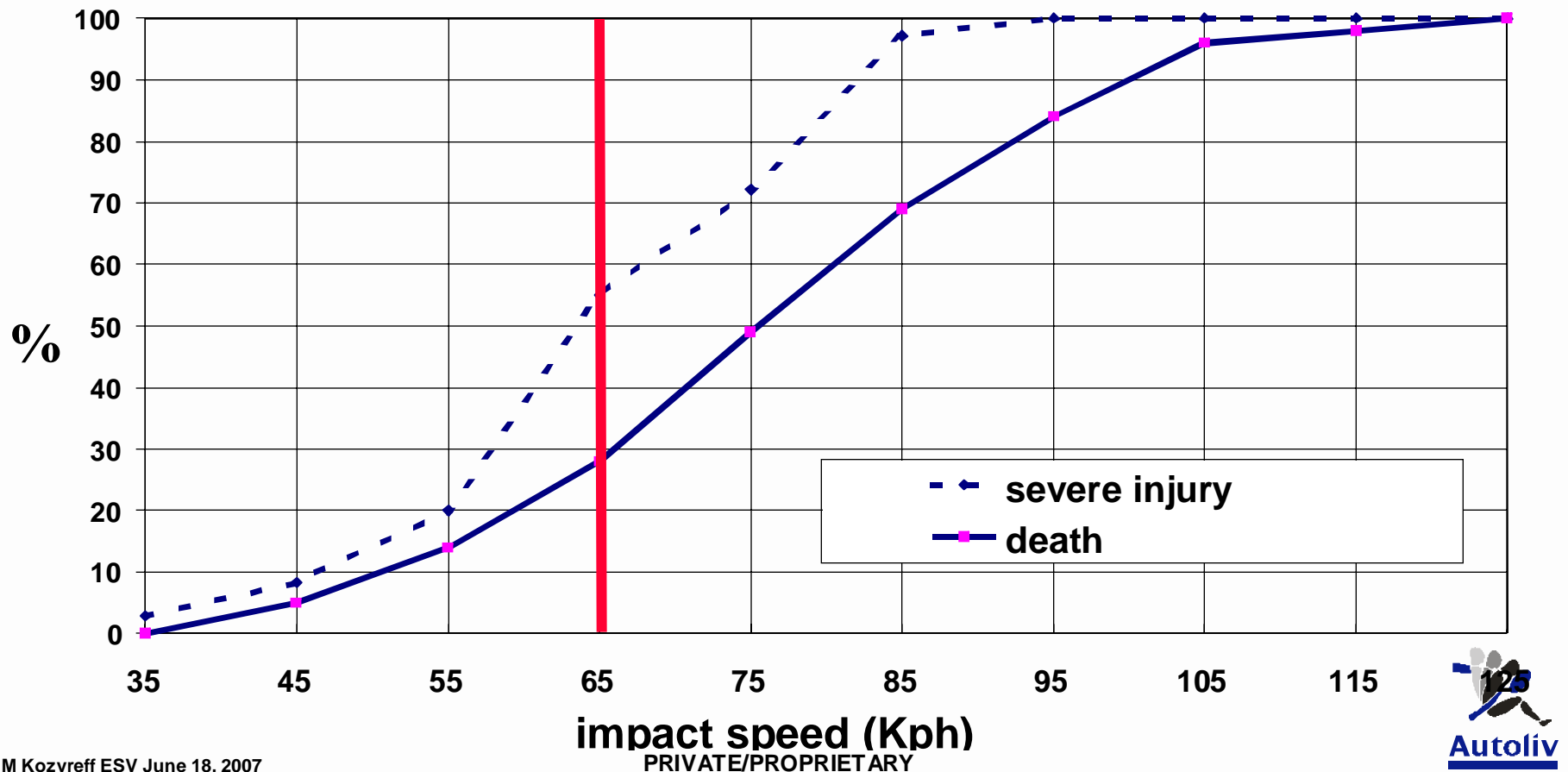
The business case must be attractive to the Car Manufacturer. A priority will be set for a feature that

- is required to sell cars (e.g. compliancy with regulations)
- is beneficial to sales
 - Brand image
 - Differentiator that can be sold against a premium
- provides the car manufacturers with internal value: cost reduction, contribution to other challenges

Needed evolution of Regulations and Rating Tests

1. Address real world needs. Example

Cumulative percentage of severe injury and death as a function of collision speed - vehicle to vehicle side crash



Needed evolution of Regulations and Rating Tests

2. Allow and specify the use of new technologies in rating tests. Example:

- Activation of Collision Mitigation by Braking (CMbB) in EuroNCAP crash tests
- Will result in reduced impact speed

Make Safety beneficial to Sales

Car buyers need to be educated

- Example: Stability Control Systems (ESP)

New technologies must be promoted to car dealers

- Dealers don't like Electronics

New systems must be user friendly

- Why would your wife not use Adaptive Cruise Control ?

Provide Car Manufacturer with internal value

Contribute solve other challenges.

- Carbon emission (EU) and coming size/weight (USA) regulations will generate smaller, lighter cars
- Keeping Occupant Protection performances as current will induce additional costs (stiffer crash pulses, higher potential intrusion...)
- Active Safety and Pre-Crash technologies can be used to enhance crashworthiness of light, short structures

Provide Car Manufacturer with internal value

Example: Active Front Bumper

- Triggered by sensors common to Driver Assistance and Pre-Crash
- Version 1: absorbs >20% of crash energy
- Version 2: addresses compatibility issue



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Conclusion

Only an integrated approach will make the necessary breakthrough affordable

- Integrated safety: from prevention to protection
- Integrated design challenge: combine needs for smaller dimension, lower weight and for increased Safety

Conclusion (2)

Necessary process (early phase)

- Establish coordinated road maps for Car Structure including Integrated Safety
- Ensure business cases are attractive
- Validate new technologies before point of non-return

Thank You